Claims 2, 6 and 12 have been canceled. A typographical error has been corrected in claim 11.

Response to Advisory Action

In addition to what was said in After Final Response of 16 February, 2010 (which is set forth below), the applicant wishes to respond to the Examiner's notes in her Advisory Action. The following Examiner's six beliefs are respectfully shown to be incorrect:

a) The Examiner believes (line 2 of Examiner's page 2) that Olson teaches biocide and compounds such as silicates and borates, so it would have been expected that a glass would be formed in the mixture when heated.

> Firstly Olson does not teach biocide with silicates and borates, he only mentions the materials on the same page with many other substances, while silicates and borates are not taught to be used together. But even if taking silicates and borates together and heating those materials together, the formation of glass would not have been necessarily expected. Even if somebody would have expected the formation of the glass, that person of ordinary skill might have waited in vain; no glass would have been formed without mixing the materials in certain ratios. Even if the glass would have been formed, nobody would have any reason to associate it with non-comburancy; the formation of dispersed glass inside a comburant biocide for fire-retarding the biocide is a novel concept (page 4 of the specification), surprisingly discovered by the applicants, and proclaimed to be obvious by the Examiner in clear hindsight.

b) The Examiner believes (lines 7-9) that combining Olson and Jones in rejecting under 35 USC 103(a) was proper, because both Olson and Jones teach biocide, and so it would be obvious to add oxidants to the composition of Olson.

> The reasoning is incorrect, because Olson does not need Jones for incorporating oxidants. Olson teaches encapsulating bleach particles (claim 1), and bleaching materials are oxidants, as a skilled person knows (see, for example, http://en.wikipedia.org/wiki/Bleach), despite evident misunderstanding, such reasoning is used for proving obviousness of the instant invention.

c) The Examiner believes (line 12) that describing Olson's additive materials as being organic is not persuasive.

> Olson uses separate layers of different materials, whereas some of the additives added beside the bleach (=oxidant) layers are fatty acids and waxes (claim 5). A skilled person knows that fatty acids and waxes are organic materials and that there can be no discussion about it, and that it is not necessary to persuade people about it, as it is a matter of definition (see any textbook of organic chemistry) and not a matter of persuasion.

d) The Examiner believes (lines 13-15) that it would have been expected that a mixture forming glass would function as a fire-retardant for the biocide.

The Examiner does not give one reason why it would have been expected that a mixture forming glass would function as a fire-retardant for the biocide. Pages 1-3 of the instant specification show how difficult it had been to comply with the safety requirements for manipulation and transportation of strong oxidants, and particularly to comply with the non-comburancy UN test. Although the problem had existed for many decades, the known methods did not provide the same results as the instant invention, and as for Olson's and Jone's teachings, nobody considered to use them for decreasing comburancy of strong oxidants. Firstly, neither Olson nor Jones relate to the problem of comburancy, the former relating to separating bleach from detergent, and the latter to inhibiting bacterial growth. Secondly, Olson's method is very expensive, and it does not provide briquettes and bigger blocks of the biocide. The formation of glass may have been known, but it had nothing to do with comburancy of biocides; it is again respectfully noted that the glass does not form a continuous outer layer over the briquette of the biocide, as the Examiner seems to believe, but is dispersed inside the biocide – providing micro-compartmentalization in the powder, separating the particles of the oxidant from the outer environment for case of eventual fire, and importantly, insulating and even cooling the oxidant in the time of fire as the glass formation is an endothermic process; such a composition and its use are evidently non-obvious.

e) The Examiner seems to believe (lines 21-22) that the instant inorganic mixture forms a glass coat over the whole biocide outer surface when heated.

It is respectfully repeated that the glass forms in the whole volume of the biocide, as borates and silicates are homogeneously mixed with the biocide.

f) The Examiner believes (line 23) that Olson teaches a biocide, silicates, and borates in the claimed ranges, and therefore the claims are obvious in view of Jones.

The Examiner is respectfully requested to show the applicant where Olson teaches biocide, silicates and borates in the claimed ranges. Furthermore, the applicant does not understand why the invention is obvious in view of Jones, if Olson allegedly teaches everything.

Rejections under 35 U.S.C. § 103

As expressed immediately above, it appears the Examiner misunderstood the invention, and following the above explanations, and in view of detailed analysis filed on 16 February, 2010 (set forth below), the applicant respectfully hopes that the Examiner may reconsider the rejections.

In the After-Final Response, applicant wrote the following in relation to the examiner's 103 rejection:

The Examiner rejects claims 1-6 and 9-20 under 35 U.S.C. 103(a) as being unpatentable over Olson, US 4,731,195, in view of Jones et al., US 5,478,482.

The Examiner's rejections are traversed as explained below.

The Examiner acknowledges that "*Olson does not explicitly teach that a mixture of borates and silicates are used*" as an admixture (line 15 on page 5 of the Examiner's letter), and that "*Olson does not explicitly teach that the inorganic component coating forms a low melting glass over the active biocide*" (lines 4-5 on page 6). Further, the Examiner does not mention these critical features in regard to Jones, thus acknowledging that Jones does not provide them. The evident conclusion is that the formation of a low-melting inorganic, borosilicate glass in the biocide is not anticipated in the cited documents, and as no combination of technological elements provided by Olson and Jones could have been combined to provide said critical features, and, furthermore, as said features lead to an unexpected result – introduction of fire retardancy to otherwise inherently comburant material – the features are by definition non-obvious over both documents.

As defined in the amended claim 1, the invention ensures superior safety for shipping the risky material, complying with the UN test. Since all pending claims depend from claim 1, they are also believed to be non-obvious.

Even though it is respectfully believed that, after the above amendments and explanations, the claims will be allowed, the applicant wishes to provide a complete response and to relate to all Examiner's notes.

The Examiner notes (lines 7-8 on page 5 of the Examiner's letter) that Olson teaches a biocide covered with a layer of inorganic compounds, such as silicates and borates, citing Olson's column 5. Firstly, in contrast to the Examiner's belief, Olson does not teach a biocide covered with a layer of inorganic compounds, but a biocide covered with a layer of organic compounds comprising waxes and alcohols (lines 24-35 at column 5); secondly, said cited Olson's column 5 does not teach a layer of silicates and borates, but it teaches that "*nearly any substance may be employed as the outer coating material*", giving a "*nonexhaustive list*" of 34 inorganic material, and further even 14 organic materials, but without any hint that two of these 48 materials (out of thousands of various combinations), namely borates and silicates, should be simultaneously employed.

The Examiner's attention is directed to the fact that

a) the instant invention does not claim silicates or borates, but only their combination;

b) the combination in the instant invention is not used for encapsulating a precoated biocide particle, but for homogeneously admixing with the biocide and for consequent dry or wet granulating (par. 0020 of the instant application publication); and

c) the instant invention makes effort, and that is its rationale, to avoid contacting the biocide with an organic compound (par. 0003), while Olson coats the biocide with an organic compound, such as wax or alcohol.

The Examiner believes (lines 15-16 on page 5 of her letter) that Olson teaches a mixture of inorganic compounds in columns 5-6, but Olson in fact teaches "*compounds which may be used as the second coat*" (lines 47-48 at col. 5), which would mean to a skilled person that any one of them separately can be used, and not a mixture of them (used as a coat and not in a coat), and still less suggested is a particular combination of two of the materials. Furthermore, the cited passage teaches explicitly against restricting the materials to inorganic materials (see, for example, "*organic sequestering agents*" at line 62 of col. 5).

The Examiner further incorrectly believes that Olson teaches that the composition can be heated to 590-870°C (lines 6-7 on page 6 of the Examiner's letter); Olson teaches that a first inner coating is heated to its melting temperature but below the melting temperature of the outer coating (lines 29-32 at col. 3), whereas the inner coating is a wax melting at 43-60°C (lines 35-36 at col. 5). The passage reciting 590-870°C (lines 8-13 at col. 5) does not relate to treating the Olson's product, but to the theoretical melting point of an additional optional coating (useful initial polyphosphate coating, claim 7), which is never melted during the process (see the Olson's Examples). Olson employs temperatures around 100°C (line 64 at col. 4), and emphasizes that said optional polyphosphate will not be affected during said low temperature treatment; however, this polyphosphate would be unusable in the present invention as it is explicitly taught by Olson as unstable at high temperatures and as decomposing (line 13 at col. 5).

The Examiner's conclusion at lines 13-14 on page 6 ("*Therefore, the inorganic coating that reduces the oxidant ability of the biocides as disclosed for the instant invention is taught by Olson.*") results from a misunderstanding, because

> a) Olson does not teach inorganic coating, but a complex multiple, partially or fully organic coating created at a temperature higher than the melting temperature of the organic component; and
>
> b) the instant invention does not disclose any coating, but it discloses mixture of two powders (a biocide and a combination of inorganics mixed at ambient temperature), wherein no coating or layering is present in the composition, nor any melting or increasing temperatures participates during manufacturing the instant composition.

It is emphasized that one of the powders assumes a fire-retarding role during an accidental temperature increase; only in the time of an accident, the inorganic combination melts and surprisingly renders the biocide non comburant

Finally, in her Response to Remarks, the Examiner notes that Olson's composition would also form a glass coating over the biocide when heated (lines 4-5 on page 3 of the Examiner's letter). As mentioned above, Olson teaches organic inner coating (lines 25-35 at col. 5), and any

organic or inorganic substance with a higher melting point for outer coating (lines 39-68 at col. 5), reciting many materials, but never hinting that borates and silicates should be of any purpose or advantage, and never hinting that they should be used simultaneously. But for the sake of discussion, even if incidentally present, borate and silicate would form a coating from the beginning (these materials are recited as being the outer coating) on the capsule, even without heating at 300-800°C, and these inorganics would be never mixed with the biocide inside the capsule, while the biocide in the capsule core would be in contact with the organic material of the inner coat – hardly complying with the fire retardancy of the instant composition. On the other hand, the instant composition has never got any coating, because the instant glass is dispersed within the biocide. Examiner notes that the claim language does not exclude the presence of coatings or layers also in the instant invention; as amended claim 1 uses the language "biocidal components mixed with a combination of inorganic compounds", it is now clear to a person skilled in the art that the components are interspersed and not layered.

The Examiner cites Jones (the last paragraph on page 6 and page 7 of her letter), as completing the Olson's teaching and yielding the missing parts to provide the instant invention. The Examiner mentions hydantoins as the missing part to be added from Jones to Olson, and concludes:

> "*A reasonable expectation of success could have been expected by adding the constituents taught by Jones et al. to the composition taught by Olson. Therefore it would have been prima facie obvious for one of ordinary skill in the art, at the time of the invention, to incorporate the oxidants such as halogenated hydantoins, and flocculants such as aluminum sulfate, into the composition taught by Olson, because both compositions are used as biocides.*"

It is respectfully submitted that by adding the mentioned constituents of Jones et al., namely hydantoins and flocculants, to the Olson's encapsulated particle, the resulting composition would not resemble the instant composition more than before said adding. Olson's three to four layered capsule of biocide and organic admixtures covered with a solid coat has nearly nothing in common with the instant non flammable, homogeneous mixture of biocide with inorganic admixtures, and the two systems would not be more similar if the coated, multilayered capsule further contained flocculants or hydantoins – materials not constituting an essential part of the instant invention as defined in amended claim 1.

The critical feature of the instant invention is simple: less than 20 wt% of borates and silicates admixed into a biocide renders the biocide fire-retarded, because in case of an accidental fire – borosilicate glass is formed inside the homogeneous mixture, inhibiting the fire spread inside the material body. When keeping this in mind, it is clear that Olson does not address the instant goal and even incidentally does not contribute to

attaining it, because it does not explicitly teach inorganic admixtures, it does not explicitly teach a combination of just two admixtures, and it teaches against dispersion of admixtures in the biocide (teaching their layering). Jones does not address the instant goal either, so that a person skilled in the art, trying to fire-retard a biocide, in the time before the instant application, would have hardly had any motivation to combine Olson with Jones; however, even if in hindsight considering Jones et al., a combination of borates and silicates would not have been found there, nor the idea of low melting glass interspersed within the biocide. Finally and importantly, the goal of fire-retarding the biocide is achieved in the invention by surprisingly simple means.

In view of the comments set forth in the advisory action, applicant would like to supplement the after-final response, set forth immediately above, as follows:

As mentioned, Olson relates to separating bleach from detergent (line 15 at col. 1, Olson); the bleach would be deactivated by reacting with other components without the encapsulation (lines 30-35 of col. 1). Typically, Olson uses organic materials to be present in the composition (lines 66-69). The core is coated, preferably by organic materials selected from fatty acids and waxes (lines 25-35), the whole composition comprising at least three separate phases (claim 1), and is created in a complex process including heat-treating (claim 1). Olson's technique has nothing in common with the instant invention, but most importantly it does not relate to comburancy and still less to the comburancy UN test. Jones relates neither to comburancy (the instant subject) nor to separating the bleach from detergent (Olson's subject); Jones relates to maintaining consistency in antimicrobial treatment (lines 50-67 at col. 2, Jones). It is not clear what Jones can add to Olson that is missing there; and even in hindsight, it seems impossible to show how a skilled person would derive the homogeneous, non-coated, nonlayered, mono-phase, cheap and simple fire-retarded mixture of this invention from Olson's complex layers, and moreover, how would a skilled person convert the Olson's use or Jones' use of their respective materials to flame-retardancy of biocides. The Examiner kindly acknowledges that neither Olson nor Jones teaches comburancy (line 15).

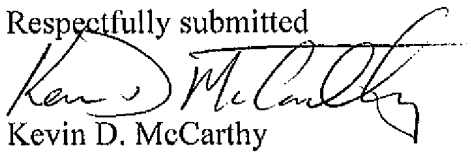
It was an object of the instant invention to find a safe biocide composition, which would also pass the new tests, realizing that no such composition had been invented in spite of the demand (2nd paragraph on instant page 3). Trying to comply with the tough requirements, avoiding the presence of additional organic materials (3rd paragraph on page 1), and aspiring for economical solution of the problem, the invention provides a simple, inexpensive, homogeneous composition which when subjected to unintentional source of heat such as fire (the last paragraph on page 3), behaves according to the regulations, wherein the biocide may have any shape and size (2nd paragraph on page 7). The unnintentional heating by fire contrasts with Olson's intentional heating treatment (Olson's claim 1). The invention brought a novel concept into fire-retarding of biocides (4th paragraph on page 4).

Conclusions

Following the amendments, and the detailed explanations, it is respectfully requested that the claims are allowed. It is respectfully submitted that the cited prior art could not have inspired a person skilled in the art to solve the problem as done in the

instant invention. It is believed that, after the above amendments and explanations, the pending claims are now ready for allowance.

Respectfully submitted



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